

A NEW MEXICAN SPECIES OF
PHYLLANTHUS (EUPHORBIACEAE) WITH
SOUTHERN HEMISPHERE AFFINITIES

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In June, 1976, I received from Dr. Neil Harriman at Wisconsin State University (Oshkosh) an unidentified *Phyllanthus* which he had collected in the highlands of southwestern Tamaulipas, Mexico. The specimen was entirely pistillate and obviously represented a species unlike any other known from that area. Fortunately, I was planning a field trip to Mexico in the summer of 1976 and it was not difficult to locate the plant along the road (route 101) from Victoria to Tula, growing in scrub on limestone near the turn-off to the village of Bustamante. Here there were many staminate plants, and it was immediately apparent that the species is unusual in several respects: 1) dioecious inflorescence distribution; 2) unusually high elevation (between 5000 and 6000 ft) for *Phyllanthus* species in Mexico other than temperate ones such as *P. polygonoides*; and 3) deviant vegetative structure, with deciduous branchlets as in many species of *Phyllanthus* (Webster, 1956) but with the leaves on the permanent branches not reduced to cataphylls. This systematically isolated species is herewith described and named in honor of its discoverer, Dr. Neil Harriman.

Phyllanthus harrimanii Webster, sp. nov., ab omnibus speciebus Mexicanis differt foliis ramorum non reductis sed ramulis deciduis, plantis dioicis, staminibus 3 liberis, pollinis granis globosis 3-colporatis grosse reticulatis.

Glabrous bushy shrub 0.5–1.5 m high; branches brownish, terete, slender; branchlets \pm deciduous, the branching subphyllanthoid, leaves on persistent axes not reduced to cataphylls (but tending to be smaller than those on branchlets); branchlet axes (1.5–) 3–6 (–8) cm long, terete, straight or zig-zag, smooth, stramineous, with (3–) 6–15 leaves, occasionally with an iterative side-branch. Leaves with stipules lanceolate, acuminate, 1.5–3 mm long, \pm stramineous becoming brownish and indurate (especially on persistent axes); petioles 1–3 mm long; blades elliptic or ovate, thinly but firmly subcoriaceous, acute or obtuse and minutely apiculate at the tip, obtuse to rounded and somewhat oblique at base, about 1–3.5 cm

long, 0.5–2 cm broad, greenish above, below glaucous (minutely stomatiferous-pustulate under a lens), veins about 4–6 on a side, rather obscure, veinlets not visible; margins entire, recurved or subrevolute. Dioecious; flowers axillary on branchlets; staminate flowers 1 or 2 per axil, pistillate flowers solitary. Staminate flower: pedicel capillary, 5–12 mm long; calyx lobes 5, ovate to obovate, entire, yellowish, midrib with \pm prominent branching lateral veins, 1.5–2.3 mm long, 1.2–2.0 mm broad; disk segments 5, reniform, flat, smooth, about 0.3–0.4 mm long and 0.6–0.7 mm broad; stamens 3, free; filaments terete, 0.6–1.0 mm long; anthers broadly elliptic, compressed, with connective enlarged, mucicous, slightly emarginate, longitudinally dehiscent, about 0.5 mm long, 0.6–0.7 mm broad; pollen grains globose, about 20–25 μ m in diameter, tricolporate, colpi elongated and rather narrow, not bordered, reticulum rather coarse. Pistillate flower: pedicel slender, terete, 9–14 mm long; calyx lobes 5, oblong to broadly ovate or obovate, blunt, greenish, rather obscurely pinnately veined, 2.0–2.5 mm long, 2.4–3.0 mm broad; disk angular, 2.0–2.5 mm across, smooth, flat, slightly fleshy, \pm dissected into 5 closely contiguous segments 0.9–1.2 mm broad; ovary oblate, smooth, about 1.5 mm across; styles free from the base, spreading, 1.3–1.7 mm long, bifid, the subulate branch-tips 0.7–1.0 mm long. Capsules oblate, about 6 mm broad; columella rather slender, about 2 mm long; seeds obtusely angular, irregularly mottled-banded with elongated brownish cells on a yellowish background, 2.6–3.2 mm long, 2.0–2.4 mm broad. (Figure 1)

TYPE: Mexico, Tamaulipas, dense scrub on limestone slopes 6 mi W of Palmillas, alt. 5300 ft, associated with *Astrocasia neurocarpa*, 1 August 1976, G. L. Webster & W. S. Armbruster 20496 (Holotype, DAV; isotypes to be distributed).

ADDITIONAL COLLECTION EXAMINED: Mexico, Tamaulipas, Bustamante, alt. 5900 ft, 12 August 1975, Neil A. Harriman 11615 (DAV).

The two localities are very close to one another in a floristically rich area of limestone ridges in the Sierra Madre Oriental. However, although there are many interesting species of Euphorbiaceae in this region west of the Jaumave Desert, *Phyllanthus* is extremely rare. The new species is therefore isolated geographically and ecologically as well as systematically.

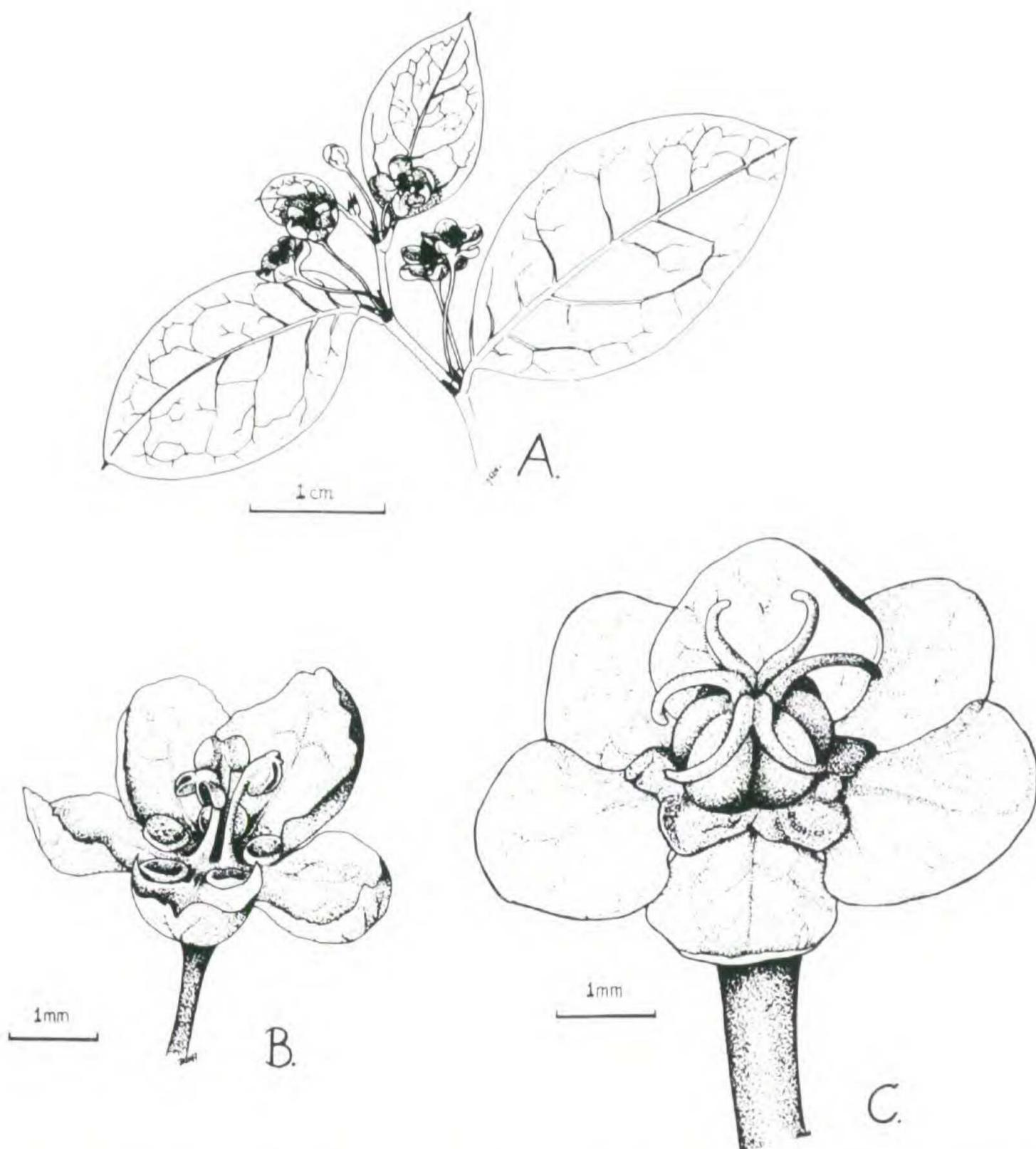


Figure 1. *Phyllanthus harrimanii*. A, Tip of branch of staminate plant; B, Staminate flower; C, Pistillate flower.

The affinities of *Phyllanthus harrimanii* are not at all clear. It does not appear to be close to any other species of Mexico or Central America. The aspect of the foliage is reminiscent of certain Cuban species, but those have true phyllanthoid branching and areolate pollen grains. Perhaps the most striking resemblance is with the South American *P. sellowianus*, which resembles *P. harrimanii* in its subphyllanthoid branching, elliptic leaves, dioecious flower production, and staminate flowers with three free

stamens whose anthers dehisce longitudinally. However, the areolate pollen grains of *P. sellowianus* are very different, and, in fact, necessitate placing that species in subg. *Xylophylla*.

The pollen grains of *Phyllanthus harrimanii* are not closely similar to any of those illustrated by Köhler (1967), Punt (1967), or Punt & Rentrop (1973). However, they do somewhat resemble those of certain Brazilian species which were placed in "subsect. 2" of sect. *Phyllanthus* by Mueller (1873), although none of these are particularly close in overall morphological characters. *Phyllanthus submarginatus* Muell. Arg. agrees in its dioecious flowers and subphyllanthoid branching, but has very different leaves and much more discrete anther locules. *Phyllanthus lacteus* Muell. Arg., although monoecious, has glaucous leaves suggestive of the Mexican plant. Several species, such as *P. glaziovii*, show some resemblance but have truly phyllanthoid branching. More surprisingly, there is a resemblance with the Australian species *P. subcrenulatus* F. Muell., which has subphyllanthoid branching.

Pending a revision of the entire genus, it seems preferable not to place such species as *Phyllanthus harrimanii* in sect. *Phyllanthus*, where they would appear discordant with the many herbaceous species that are much more specialized morphologically. Ferdinand Mueller created a special group, subg. *Lysiandra*, for *P. subcrenulatus*; and it is here proposed to recognize that as a section within subg. *Phyllanthus*, to accommodate some of the woodier presumably primitive species of the subgenus.

Phyllanthus sect. **Lysiandra** (F. Mueller) Webster, stat. nov.

Phyllanthus subg. *Lysiandra* F. Mueller, Fragm. Phyt. Austral. 1: 108. 1859.

Glabrous shrubs with subphyllanthoid branching, the leaves on the main stem and branches tardily or not at all reduced to cataphylls; leaves orbicular to elliptic; monoecious or dioecious; calyx lobes 5 or 6; stamens 3, free or rarely basally united, anthers with \pm enlarged connective, anther-sacs discrete, dehiscing longitudinally; pollen grains subglobose or globose, tricolporate, reticulum mostly coarse; seeds finely striate-banded.

TYPE SPECIES: *Phyllanthus subcrenulatus* F. Mueller.

ADDITIONAL SPECIES: *Phyllanthus dallachyanus* Benth., *P. gunnii* Hook. f. (Australia); *P. amoenus* Muell. Arg., *P. submarginatus* Muell. Arg. (South America); *P. harrimanii* Webster (Mexico).

In the narrow circumscription of sect. *Lysiandra* adopted here, species such as *Phyllanthus clausenii* Muell. Arg. are excluded because of their phyllanthoid branching, even though they are similar in having anthers with enlarged connectives and tricolporate globose pollen grains. When the South American taxa of *Phyllanthus* are revised, it may be necessary to broaden the circumscription of sect. *Lysiandra* to permit the inclusion of some species with phyllanthoid branching.

The referral of *Phyllanthus harrimanii* to an otherwise antipodal section raises some provocative phytogeographic questions. This new species from Tamaulipas does appear to be a relict of a relatively primitive neotropical element which now survives in Brazil and which is absent from the West Indies. It shares with *Phyllanthus tuerckheimii* of Guatemala (Webster, 1967) the distinction of showing the greatest taxonomic isolation of any species in North America. At present both taxa point to austral connections in an enigmatic manner, which remains to be clarified by further revisional and palynological studies.

ACKNOWLEDGMENTS

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